

# Analysis of Fragrance and Allergens using an Agilent J&W FactorFour VF-WAXms GC Column

## Application Note

### Author

John Oostdijk  
Agilent Technologies, Inc.

### Introduction

Allergic reactions to perfumes and the individual components responsible for these reactions have been studied since the late 1970s. The fragrance mix used internationally to diagnose fragrance-allergic patients includes eight ingredients: oak moss extract, iso-eugenol, eugenol, cinnamal, hydroxy citronellal, geraniol, cinnamyl alcohol and amyl cinnamal. Analysis of this particular fragrance mix on a VF-WAXms reveals the presence of a number of these common allergens. The MS compatibility of VF-WAXms is clearly evident, especially in the low bleed profile around 250 °C , as shown in Figure 1 on page 2.



**Agilent Technologies**

**Conditions**

Technique: GC-MS  
Column: VF-WAXms  
30 m x 0.25 mm x 0.25 µm (part  
number CP9205)  
Oven: 100 °C to 250 °C with 10 °C / min  
Carrier Gas: Helium, 1.0 mL/min  
Injector: Split 1:30, T = 250 °C  
Detector: GC-MS Iontrap  
Trap: 200 °C  
Manifold: 60 °C  
Sample Size: 0.1 µL  
Sample: Fragrances mixture (500 ppm)

**Peak Identification:**

1. *Linalool*  
2. *Methyl heptin carbonate*  
3. *Phenyl acetaldehyde*  
4. *Methyl chavicol*  
5. *Methyl octin carbonate*  
6. *Citronellol*  
7. *Geraniol*  
8. *Methyl gamma ionone*  
9. *Benzyl alcohol*  
10. *Cinnamaldehyde*  
11. *Hydroxy citronellal*  
12. *Methyl eugenol*  
13. *Lilial*

14. *Eugenol*  
15. *Amyl cinnamyl aldehyde*  
16. *Anisic alcohol*  
17. *Cinnamyl alcohol*  
18. *Farnesol isomer I + II*  
19. *Farnesol isomer III*  
20. *iso-Eugenol*  
21. *Hexyl cinnamic aldehyde*  
22. *Lyrall (4,4-isomer)*  
23. *Coumarine*  
24. *Amyl cinnamic alcohol*  
25. *Benzyl benzoate*  
26. *Benzyl salicylate*  
27. *Benzyl cinnamate*

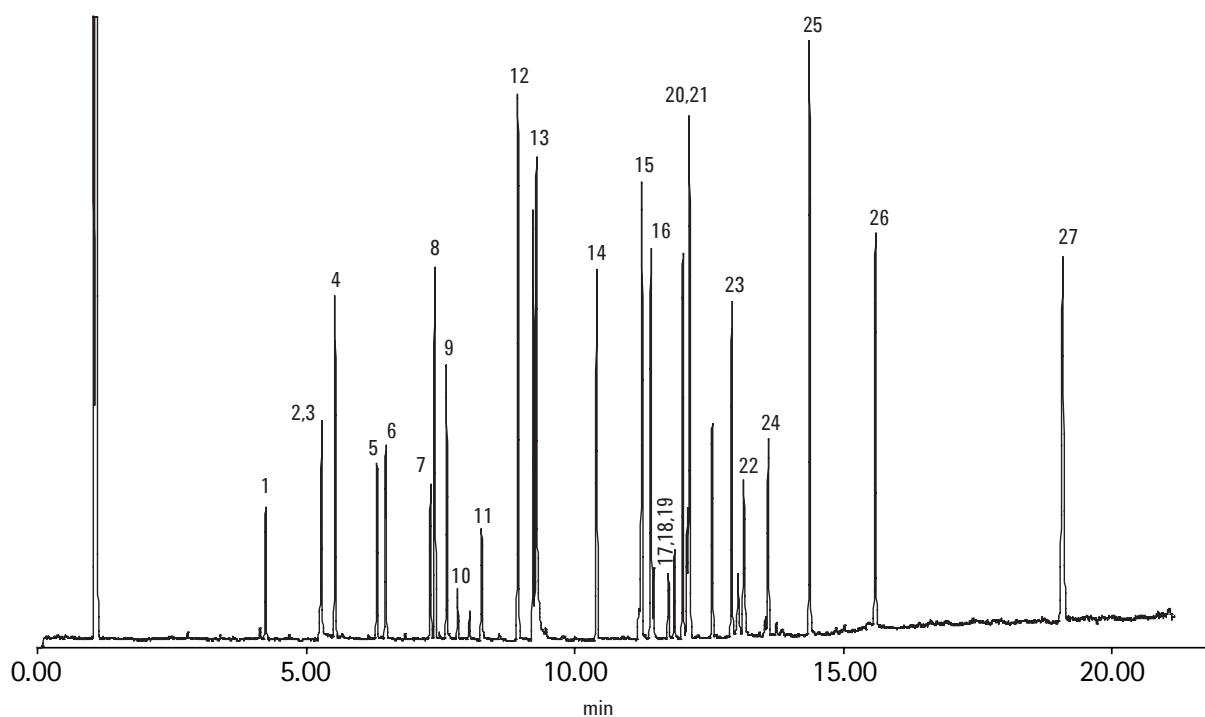


Figure 1. Analysis of fragrance and allergens using VF-WAXms GC columns

[www.agilent.com/chem](http://www.agilent.com/chem)

This information is subject to change without notice.

© Agilent Technologies, Inc. 2010

Published in UK, October 08, 2010

SI-01061



**Agilent Technologies**